



Role of Injectable Iron Sucrose in Pregnancy Beyond 26 Weeks

KEYWORDS

Dr. Riddhi Shah

Senior Resident ,Department of Obstetrics and Gynaecology, GMERS Medical College, Sola, Ahmedabad

*Dr.Komal Modi

Assistant Professor ,Department of Obstetrics and Gynaecology, GMERS Medical College, Sola, Ahmedabad. *Corresponding Author

Dr. Swati Patel

Assistant Professor ,Department of Obstetrics and Gynaecology, GMERS Medical College, Sola, Ahmedabad

Dr . Santwan Mehta

Senior Resident ,Department of Obstetrics and Gynaecology, GMERS Medical College, Sola, Ahmedabad

Dr. Ajesh Desai

Professor & Head ,Department of Obstetrics and Gynaecology, GMERS Medical College, Sola, Ahmedabad

INTRODUCTON:

Anemia is the commonest haematological disorder of pregnancy. 80% of pregnant women suffer from anemia in India. The reasons are poor nutritional status, pregnancy at short intervals, malaria& hook worm infestation.

Pregnancy with anemia is a topic of special interest for the obstetrician because if it is not treated in time it may lead to serious complications like pre-eclampsia, inter-current infection, preterm labour, uterine inertia, post partum haemorrhage, cardiac failure and puerperal sepsis. Thus, anemia can cause direct as well as indirect maternal mortality. ⁽¹⁾

The huge problem called anemia that adversely affects maternal & foetal outcome is simply prevented by iron supplementation. The newer parenteral iron therapy especially iron sucrose is a boon for patients who are intolerant to iron tablets, noncompliant to tablets or suffering from malabsorption syndrome & moderate to severe anemia in second trimester or early third trimester. Iron sucrose also reduces the need for blood transfusion for blood transfusion and its hazards.

The World Health Organization (WHO) defines anemia in pregnancy as haemoglobin level below 11 gm/dl. But criteria for developing countries are different, with a cut off value of 10gm/dl. In developing countries following values are used: Mild Anemia :8-10gm% ,Moderate Anemia :6.5-8 gm% , Severe Anemia:< 6.5 gm%. Prevalence of anemia among pregnant women in India averages 57.9%.

AIMS AND OBJECTIVE:

- 1) To determine the role of intravenous iron sucrose with better efficacy, compliance, safety in management of iron deficiency anemia during pregnancy.
- 2) To reduce the complications related to anemia like sepsis, PIH, cardiac failure, postpartum haemorrhage etc. during pregnancy and to improve the maternal and perinatal outcome.
- 3) To evaluate the efficacy of intravenous iron sucrose complex (ISC) in the treatment of iron deficiency anemia during pregnancy by haematological parameters.

MATERIAL AND METHOD:

A prospective observational study was conducted at SOLA

CIVIL HOSPITAL, AHMEDABAD over a period extending from JAN – 2013 to JUNE – 2014. A total of 100 patients, between 26-34 weeks of pregnancy were included in study. Patients taking routine ante-natal visit were examined in out-patient department and sent for haemoglobin (Hb) estimation on OPD basis. Patients having Hb below 9.0 gm/dl were investigated further, counselled and admitted in ward. Total required dose was calculated and 100 mg (1 ampoule of 5 ml with concentration 20mg/ml) iron sucrose in 100 ml normal saline was given over a period of 15-20 minutes, on alternate days. Repeat CBC was done after a period of 6 weeks. Thalassaemia positive patients excluded from the study.

Dosage and Administration:

The dosage of iron sucrose is expressed in terms of mg of elemental iron. Each ml contains 20 mg of elemental iron. It must only be administered intravenously either by slow injection or by infusion.

Amount of iron required is calculated using Ganzoni's formula for anemia ^{(2):}

$$\text{Total iron dose (mg)} = 2.4 * (W) * d + 500$$

$$W = \text{Weight in kg., } d = (\text{Target Hb-Actual Hb}) \text{ in gm/dl}$$

Dosage guidelines for iron sucrose:

• IV bolus

Iron sucrose can be given by I.V. bolus - up to 100 mg (5 ml) to be administered over 2-5 minutes.

• IV infusion

Up to 100 mg (5 ml) can be given by I.V. infusion in 100 ml normal saline over 15 minutes.

Rate of improvement:

The improvement should be evident within 3 weeks of the therapy. Haemoglobin concentration is expected to rise at the rate of about 0.7 gm / 100 ml per week after 2-3 weeks of completion of therapy.

Response of therapy is evidenced by: Sense of well being, Increased appetite, Improved outlook of the patient .

Haematological examination: Rise in haemoglobin level, Hematocrit value returning to normal, Reticulocytosis within 7-10 days.

RESULT:

Total of 100 patients were included and they were given required dose of iron sucrose intravenously. Patients were followed till delivery.

Table 1: Rise in Haemoglobin Level

Pre-treatment Hb			Post-treatment Hb		
Hb (gm%)	No. of Pts.	%	Hb (gm%)	No. of Pts.	%
6.0-6.9	14	14%	9.0-9.9	36	36%
7.0-7.9	26	26%	10.0-10.9	60	60%
8.0-8.9	60	60%	11.0-11.9	4	4%
Total	100	100%	Total	100	100%

Mean Hb Pre-Treatment	Mean Hb Post-Treatment	Rise in Hemoglobin
8.1 gm%	10.2 gm%	2.1 gm%

Over a period of 6 weeks, mean rise of haemoglobin is 2.1 gm%

Table – 2 Rise in MCV by Mean

Pre – Treatment MCV	Post – Treatment MCV	Rise (fl)
68.2 fl	78.8 fl	10.6 fl

Over a period of 6 weeks, mean MCV rise by 10.6 fl.

Table – 3 Adverse Reactions

Adverse Reaction	No. of Pt.	%
Skin Rashes	4	4 %
Headache	8	8 %
Vomiting	6	6 %
Superficial thrombophlebitis at injection site	2	2 %
Major anaphylactic reaction	0	0 %

During the treatment of iron sucrose none of the patient suffered with any major adverse reaction.

Table – 4 Maternal Outcomes

Outcome	No. of Patients	%
FTD	64	64%
FTCS	26	26%
PTD	10	10%
Total	100	100%

In this study, 10% of patients were delivered preterm. That suggests that in treated cases of anemia, risk for preterm is reduced. 90% of patients, treated for anemia were deliv-

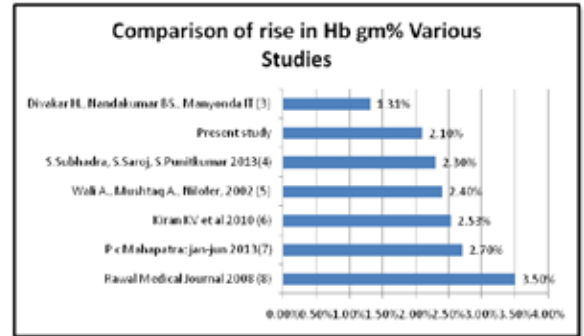
ered at full term, either vaginally (64%) or by LSCS (26%).

Table – 5 Foetal Outcomes

Birth Weight (kg.)	No. of pts.	%
Less than 2.5k.g	30	30%
2.5k.g and more	70	70%
Total	100	100%

Above table shows that, in anemia treated cases, birth weight is significantly improves. Most of the babies (70%), having birth weight of more than 2.5.

DISCUSSION:



We used intravenous iron sucrose of the same brand in all 100 patients under present study which was supplied by hospital and the result of present study was rise in mean Hb was 2.1 gm% which comparable to other studies shown in table.

Mean MCV rise by 10.6fl in present study which was comparable to studies by Rawal Medical journal 2003 -10 fl(8) ,Raja K. 2003 -10fl(9) , Euro Journal of Obst & Gynec 1996 -14 fl(10).

CONCLUSION:

Intravenous Iron Sucrose when given in properly indicated patients, in proper dosage, at proper timing, it will result in better maternal and foetal outcome. This is evidenced by rise in Hb and other blood indices .Maternal complications like recurrent infections, preeclampsia, preterm labour, cardiac failure, post partum haemorrhage, puerperal sepsis can b prevented by correction of anemia. Blood transfusion induced transmission of infectious diseases and blood transfusion reactions are avoided by well timed use of alternate therapy with intravenous iron sucrose. There is better foetal outcome by preventing preterm and IUGR related complications. So there is overall reduction in morbidity and mortality of the patients as well as their foetus after correction of anemia.

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